

ABSTRACT OF THE DISCLOSURE

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a Passive physiological monitoring apparatus and method has a sensor for sensing physiological phenomenon. A converter converts sensed data into electrical signals, and a computer receives and computes the signals and outputs computed data for real-time interactive display. The sensor is a piezoelectric film of polyvinylidene fluoride. A band-pass filter filters out noise and isolates the signals to reflect data from the body. A pre-amplifier amplifies signals. Signals detected include mechanical, thermal and acoustic signatures reflecting cardiac output, cardiac function, internal bleeding, respiratory, pulse, apnea, and temperature. A pad may incorporate the PVDF film and may be fluid-filled. The film converts mechanical energy into analog voltage signals. Analog signals are fed through the band-pass filter and the amplifier. A converter converts the analog signals to digital signals. A Fourier transform routine is used to transform into the frequency domain. A microcomputer is used for recording, analyzing and displaying data for on-line assessment and for providing realtime response. A radio-frequency filter may be connected to a cable and the film for transferring signals from the film through the cable. The sensor may be an array provided in a MEDEVAC litter or other device for measuring acoustic and hydraulic signals from the body of a patient for field monitoring, hospital monitoring, transport monitoring, home, remote monitoring.